

Energy in every lifecycle, for everyone:
repurposing EV batteries and rural electrification in Colombia

When it comes to the energy transition, we can really do more with less. My name is Pablo Castellanos, I come from Colombia, and our project aims to spread sustainable energy through the re-use of batteries from Electric Vehicles.

For me sustainable development has a sort of calling: it's our generation's great challenge; in a way, one of the largest challenges ever faced by humanity. Growing up in Colombia has showed me that all ecosystems are as fragile as they are fascinating, and that human impact can be either perfectly balanced, or cause irreversible damages. The awe that I feel from admiring nature and the world as a whole (us included) drives me to take part in its preservation and betterment.

I've chosen to generate positive solutions through entrepreneurship. I believe that, harnessing the rapid scalability inherent in the startup market through the development of an innovative solution, will accelerate positive impacts and contribute to the creation of a sustainable economy. I was introduced to this world by my best friend, who developed the necessary technology to reuse li-ion batteries and invited me to join him in starting a company together. The potential of using second life for powering the energy transition without relying on resource exploitation led us to begin this journey of battery reuse which we've named BATx.

Our technology focuses on harnessing the remaining power left in EV (Electric Vehicle) batteries after they have been used in a first life cycle in mobility and employing it for new uses. EV batteries have large capacities for energy storage and have become widely available in recent years, which makes them ideal for reuse. As electric mobility phases out fossil fuel vehicles, it is important to find ways to employ its byproducts in new services. We extract the components of the EV battery that store its energy and use them as the building blocks that make up the batteries that we design for solar energy and other applications. Our product is based on circular economy, custom built

for renewables, and carbon negative. We strive to be key players in Latin America's sustainable energy transition. First in Colombia, by creating a sustainable storage solution that is cheaper than other batteries in the market, without sacrificing quality or performance.



The BATx business model for transforming EV batteries into second life batteries.

We approached Youth4Climate (Y4C) with a proposition to go beyond our environmental impact by bringing solar energy to remote communities that lack electrical infrastructure, this is why our proposed project is called "Energy in every lifecycle, for everyone". Rural electrification is urgently needed in Colombia, where hundreds of thousands of families have no access to the electrical grid. Installing solar generation is an ideal solution for communities located in remote places, but high battery prices limit its adoption. This project will prove the benefits of our technology for rural electrification and boost its adoption. What we will do is employ our technology to develop an energy system for a school in a rural native community and install it with solar generation, giving them full energetic autonomy. The funds awarded

by Y4C will bring to life a project that will positively impact the people in the benefited community by improving the quality of their education and will kickstart the adoption of these systems all over the country.

We will install our generation system in a village of the Arhuaco native community. They are located in the Sierra Nevada de Santa Marta region, the tallest coastal mountain in the world and home to valuable ecosystems protected by their ancestral knowledge. Powering one of their schools will help them preserve their traditional Iku language and traditions. We are very glad to work with this community by providing them with tools that will help them with their valuable work in cultural and environmental work.



Youth member of the Arhuaco community in the Palomino River.
photo: Pablo Castellanos Ramelli

Y4C has opened doors to us that made us realize that we have a role to play in global sustainability; that our solutions matter. The Y4C community has connected us to friends all over the world. We are now part of a community of change-makers helping each other out. It's amazing to meet so many talented young people who put their ideas to action. It makes me feel hopeful and proud to be a part of this community. Y4C is helping us make sure that our project is adequately implemented and that we develop the skills needed to take it through successfully. We have been given the

opportunity to realize our ideas, showcasing the inherent potential of our solution to combat climate change.

Some people spread false information about electric mobility to portray it as unsustainable. For example, by saying that its batteries are more polluting than fossil fuel engines. The truth is that EVs are an ideal sustainable solution but, as a new technology, they bring new challenges of their own. What we are doing is finding a solution to the challenge of battery end-of-life. Employing them to accelerate the Energy Transition and improve the quality of life in remote communities. Let's make this happen!



Our team, from right to left:

Alejandro Camargo, Andrés F. Ramírez, Camilo Villada, Sebastián Serna, and Pablo Castellanos

. . .

Want to know more about Youth4Climate and the work we do? Head to our Y4C platform!